

consisting of styrene-isoprene-styrene and styrene-butadiene-styrene, and combinations thereof.

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48. (New) The film composite of claim 19 wherein the film composite is preheated to at least 160 degrees before the film is passed through said at least one pair of interdigitating grooved rollers.

49 (New) The film composite of claim 25 wherein the film composite is preheated to at least 160 degrees before the film is passed through said at least one pair of interdigitating grooved rollers.

50. (New) The film composite of claim 26 wherein the film composite is preheated to at least 160 degrees before the film is passed through said at least one pair of interdigitating grooved rollers.

REMARKS

Support for Amendments

Independent Claim 19 has been amended to recite a breathable composite. The first layer of the composite includes a polyolefin and filler; and the second layer (as amended) includes a polymer-based film. As amended, the claims also recite that the layers have been simultaneously passed between interdigitating rollers heated to a surface temperature of from 160° F to 220° F to produce a breathable film composite having a WVTR greater than 200 g/m²/day. Claims 25 and 26 have been changed to independent form, and also amended in a manner similar to Claim 19. However, in claim 25, the second layer includes fabric, and in claim 26, the second layer includes a material "selected from the group consisting of apertured film, three-dimensional formed film, film laminates, a second polyolefin film, and combinations thereof." Support for these amendments can be found in the specification at page 4, lines 26-30; page 5, lines 10-17; page 6, line 10; page 11, lines 15-20 and 28-29; page 13, lines 26-32; and page 14, lines 3-4 and 14.

New claims 29-50 have been added. Support for the new claims is found in the specification as follows: Claims 29-31 (page 14, lines 6-7); Claims 32-34 (page 16, lines 13-15); Claims 35-37 (page 14, lines 3-5); Claim 38 (page 3, lines 29-20); Claim 39 (page 3, lines 14-21, page 10, lines 9-15 and 30-32, and page 11, lines 1-5); Claim 40 (page 11, lines 1-3); Claim 41 (page 4, line 19 and page 7, lines 6-9 and 24-30); Claim 42 (page 7, lines 24-30); Claim 43 (page 3, lines 29-30); Claim 44 (page 3, lines 14-21, page 10, lines 9-15 and 30-32, and page 11, lines 1-5); Claim 45 (page 4, lines 19-21); Claim 46 (page 4, line 19 and page 7, lines 6-9 and 24-30); Claim 47 (page 47, lines 24-30); and Claims 48-50 (page 14, lines 3-5).

Section 112 Rejections

Claims 22 and 27 have been rejected under 35 U.S.C. § 112, second paragraph. Those claims have been amended to correct the indefinite language. Withdrawal of the rejection is requested.

Section 102 Rejections

A. Sheth '303

Claims 19-22 and 25 have been rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 4,929,303 (Sheth '303). The claims have been amended. As amended, the claims are neither disclosed nor suggested by Sheth '303; and withdrawal of the rejection is requested.

Amended Claims 19-22 recite that the second layer includes a polymer-based film. In each of the composites disclosed in Sheth '303, a polyolefin film is laminated to a nonwoven fabric (not a film). None of the composites in Sheth includes two film layers. For example, each composite in Examples 6-19 of Sheth '303 includes a breathable precursor polyolefin film laminated to a nonwoven fabric (designated CLAF-1001, CLAF-2001, CLAF-3001 and CLAF-5001). (See Col. 52-64.) None of the composites includes two separate film layers laminated together.

Claims 19-22 are also different in that the two layers of the Sheth '303 composites are not "bonded" together as recited in the amended claims, wherein the two layers are bonded using interdigitating rollers heated to the recited temperature range. In Sheth '303, the films and fabrics were heat laminated by heating the fabric to 200° - 240° F and pressing the unheated film to the heated fabric between rollers. (Col. 7, lines 3-17; and col. 8, lines 60-63.) Heated interdigitating rollers were not used.

Amended Claim 25 is distinguishable over Sheth '303. As discussed above, the two layers of the Sheth '303 composites are not "bonded" together using interdigitating rollers heated to the recited temperature range, i.e., 160° to 220° F, and thus the Sheth composites are structurally different from the claimed composite film.

Accordingly, Applicant requests withdrawal of the rejection under 35 U.S.C. § 102.

B. Sheth '338

Claims 19-23 and 26-28 have been rejected as being anticipated by U.S. Patent No. 5,055,338 (Sheth '338). The claims have been amended. As amended, the claims are neither disclosed nor suggested by Sheth '338; and withdrawal of the rejection is requested.

Sheth '338 is directed to metallized films, specifically, melt embossed films treated with metal coatings. As amended, the claims differ from Sheth '338 in at least two respects.

First, Sheth '338 does not disclose a composite with a second layer that includes either a polymer-based film, as recited in Claims 19-23, or a "material selected from the group consisting of apertured film, three-dimensional film, film laminates, a second polyolefin film, and combinations thereof," as recited in Claims 26-28. The second layer of the composite in Sheth '338 is a metal coating which is applied to a stretched film. (See generally col. 7, line 25 to col. 8, line 15.)

Second, the metal coating is not applied to the polyolefin film using interdigitating rollers heated to the recited temperature range.

Accordingly, Applicant requests withdrawal of the rejection under 35 U.S.C. § 102.

C. Wu '926

Claims 19-22 and 25 have been rejected as being anticipated by U.S. Patent No. 5,865,926 (Wu '926). The claims have been amended. As amended, the claims are neither disclosed nor suggested by Wu '926; and withdrawal of the rejection is requested.

As amended, the claims distinguish over Wu '926 in at least two respects.

First, Wu '926 does not disclose a composite with a second layer that includes a polymer-based film, as recited in claims 19-22. The second layer of each composite in Wu '926 is a nonwoven fibrous web, made of fibers. (See, e.g., col. 4, lines 10-12.) The second layers of the Wu composites do not include a film, as required by claims 19-22.

Second, the layers of the laminated article in Wu '926 are not simultaneously passed between interdigitating heated grooved rollers heated to from 160° F to 220° F. In Wu '926, a laminated article is made by extruding a thermoplastic material onto a nonwoven fibrous web above the softening point of the thermoplastic material, at a temperature of 400-500° F. (See, e.g., col. 2, lines 33-38 and col. 7, lines 5-17.) Wu '926 does not disclose heating of the surface of rollers to a temperature ranging from 160° F to 220° F.

Accordingly, claims 19-22 and 25 are not anticipated, and withdrawal of the rejection is requested.

Section 103 Rejections

Claims 19-21 and 23-24 have been rejected under 35 U.S.C. § 103 for obviousness over the English abstract of JP 1266150 (JP '150) in view of U.S. Patent No. 4,289,832 (Schwarz '832) and Sheth '338 (discussed above).

As amended, the Applicant submits the claims are patentable over the cited references. The inventors have discovered that a multiple-layer composite with improved breathability is provided when the composite is passed between interdigitating rollers that have been heated to a surface temperature of 160° F - 220° F. As discussed in the application at page 14, lines 1-5, the

composite is stretched more uniformly with less tendency to tear. Applicant submits that a composite formed in this manner would not have been obvious. More importantly, such a composite is not disclosed or suggested in the prior art.

In the Office Action, the Examiner stated (a) that the films in JP '150 are stretched and used as a moisture proof sheet for paper diapers and other articles; (b) that the essential difference between the JP '150 structure and the claimed structure is the WVTR and embossing of the film structure; (c) that Schwarz '832 teaches that filled films can be embossed using grooved rollers; and (d) that Seth '338 teaches the concept of how the filler and degree of stretching is related to the porosity of the resulting film. The Examiner argued that it would have been obvious to have embossed the films taught by JP '150 using the embossing technique taught by Schwarz '832 in order to produce a porous structure, and that it would have been obvious to vary the amount of filler and stretching conditions to produce a film having the recited WVTR.

Applicant submits that, as amended, the claims are not prima facie obvious. Even if the references were combined in the proposed manner, the resulting product would still not be a breathable composite as recited in the amended claims, in which: (a) the two recited film layers are passed between two heated interdigitating rollers; (b) the first layer includes polyolefin together with 20-250 parts per hundred filler; (c) the second layer includes a polymer-based film; and (d) the composite has a WVTR greater than 200 g/m²/day.

JP '150 does not disclose or suggest the use of heated rollers. JP '150 discloses a water vapor permeable film made of a filled polyethylene composition. In addition to the differences noted by the Examiner (WVTR and embossed structure), the disclosure of JP '150 is also different from the claims in that the film in JP '150 consists of a single layer, and does not disclose or suggest a film composite of at least two different layers. Although JP '150 contains the statement that the film can be used as a "moistureproof sheet for paper diaper," it does not specifically suggest combining the disclosed polyethylene film with a second, polymer-based film as recited in Claims 19-21 and 23-24. More importantly, JP '150 does not reveal any

motivation to form a film structure by simultaneously passing two different film layers through interdigitating rollers heated to a temperature of 160-220 ° F. A wide variety of different types of diaper sheet structures other than the claimed structure can reasonably be made based on the disclosure in JP '150. Because no guidance is supplied in JP '150 regarding how to form such structures, forming the claimed composites would be "obvious to try" at best, which is insufficient for establishing prima facie obviousness.

The Examiner stated that Schwarz '832 teaches that filled films can be embossed using grooved rollers in order to make them porous, and that it would have been obvious to emboss the JP '150 films using the embossing technique taught by Schwarz '832 in order to produce a porous structure. Applicant submits that this obviousness rejection has been obviated by the amendments to the claims.

First, Schwarz '832 does not disclose the use of rollers heated to a surface temperature of from 160 to 220 ° F. In Schwarz '832, a film made of a thermoplastic polymer blend is stretched by passing the film between grooved rollers. Schwarz '832 shows a pair of grooved rollers, e.g., rollers 16 in FIG. 1. But those rollers are not heated in any manner whatsoever, nor is there any device disclosed capable of heating the rollers, nor is there any suggestion to heat the rollers. Moreover, there is no motivation to heat the rollers, since the polymer film 12 is coated or impregnated with a liquid polymer solution. (See col. 3, lines 40-48.) Because the incompatible polymer is already in liquid form, there is no logical reason to provide a device for heating the surfaces of the rollers.

Second, Schwarz '832 does not disclose a two-layer film composite. Instead, Schwarz '832 discusses coating or impregnating a film with an "incompatible second phase" that can include an incompatible second polymer (different from the film polymer). This structure is not a composite in which two films have been "simultaneously passed" between a pair of interdigitating rollers, as recited in the claims. As discussed in the present application, page 13, lines 25-27, the "films" of the layers in the claimed structures are already formed. That is, the films are in an adjacent and contiguous relationship to one another prior to being passed through

the heated interdigitating rollers. The claim recitation that two film layers have been passed between the rollers reflects the fact that the film layers are already formed. But in Schwarz '832, as shown in FIG. 1, the film 12 from supply roll 10 is coated with the second polymer by passing it through a vessel containing the second polymer in liquid form. As discussed in Example III, the incompatible polymer solution, i.e., a wetting agent solution, coats the pores near the surface of the film. (Col. 6, lines 8-12.) Thus, the second polymer in Schwarz '832 is not in the form of a pre-formed film. Therefore, even if the Schwarz '832 process were used with the JP '150 film, the result would still not be the claimed invention.

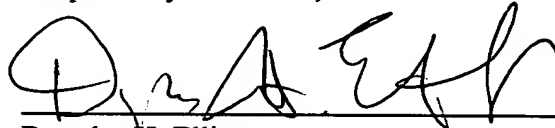
Finally, the Examiner stated that Sheth '338 teaches the concept of how the amount of filler and degree of stretching is related to film porosity. Sheth '338 refers to a process for applying a metallic coating to a polyolefin film. But as discussed above, Sheth '338 does not disclose a two-layer composite having a second layer that includes a polymer-based film. Moreover, the process for applying the metal coating in Sheth '338 is substantially different from the interdigitating process recited in the claims, so that even if the Sheth '338 process were used on the JP '150 film, the result would not be the claimed invention. For example, Sheth '338 reveals nothing about interdigitating rollers, much less a specific teaching of heated interdigitating rollers.

Accordingly, Applicant submits that, in view of the amendments to the claims, the differences between the claimed invention and the cited references are such that the claimed invention is patentable under 35 U.S.C. § 103.

CONCLUSION

In view of the above remarks, Applicant requests withdrawal of the rejections and allowance of the claims. If there are any informal matters that can be resolved, the Examiner is requested to contact the undersigned at 713-623-4844.

Respectfully submitted,



Douglas H. Elliott

Registration No. 32,982

THOMASON, MOSER & PATTERSON, L.L.P.

3040 Post Oak Blvd., Suite 1500

Houston, Texas 77056

Telephone: 713/623-4844

Facsimile: 713/623-4846

Attorney for Applicant